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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,320	03/23/2004	Yong-jin Ahn	1293.1278C3	1750

49455 7590 10/07/2005

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EXAMINER

CHOW, LIXI

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 10/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/806,320

Applicant(s)

AHN ET AL.

Examiner

Lixi Chow

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date see note 3.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 19, 23, and 24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In regards to claim 19, claim 19 recites the information data generated by the recording waveform generating unit is recorded on the optical recording medium as a wobble signal. Applicant does not describe in the specification as to how to record the information data representing a characteristic of the second multi-pulse onto the optical recording medium as a wobble signal. From the specification, second multi-pulse is generated to create a space on the optical recording medium. The recording waveform generating unit generates information data representing a characteristic of a space. Accordingly, nowhere in the disclosure provides explanation on how to record space on the optical recording medium as a wobble signal.

In regards to claims 23 and 24, both claims 23 and claim 24 recite the feature of using servo unit to read the information data from the optical recording medium. Servo circuit is briefly mentioned in paragraph [0030] of the specification, wherein the servo circuit 12 controls the motor and the optical head. The disclosure contains no description on how to read information using servo unit as claimed in claim 23 or claim 24. Thus, the disclosure requires undue experimentation as to how to make and use the invention.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 19 recites the information data is recorded on the optical recording medium as a wobble signal. However, claim 18 recites the information data is generated by the recording waveform generating unit having characteristic of the second multi-pulse. Since claim 19 depend from claim 18, the type of "information data" in claim 19 is not consistent with the type of "information data" claimed in claim 18.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-5, 7-12, 14-16, 18, 20, 21, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Dekker.

Referring to claim 1:

Dekker discloses an apparatus for forming a first state and a second state alternatively and sequentially on an optical recording medium in response to input data having a first level and a second level, respectively (see Figs. 1A-1B and 3, the recording signal 10 shown in Figs. 1A or

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1B has first state having first level indicated by reference #11, and second state having second level indicated by reference #12), in an optical recording apparatus, comprising:

a recording waveform generating unit generating a recording waveform which includes a first multi-pulse having a plurality of first pulses corresponding to the first level of the input data and a second multi-pulse having a plurality of second pulses corresponding to the second level of the input data (see Figs 1A-1B, the first multi-pulses corresponds to reference #13, and second multi-pulses corresponds to reference #14).

Referring to claim 2:

Dekker discloses the apparatus of claim 1, further comprising:

a pickup unit generating light to form the first state and the second state on the optical recording medium in accordance with the first multi-pulse and the second multi-pulse of the recording waveform generated from the recording waveform generating unit (see Fig. 3 and Col. 5, lines 3-22).

Referring to claim 3:

Dekker discloses the apparatus of claim 2, wherein the pickup unit comprises:

a laser device generating the light varying in accordance with the first pulses of the first multi-pulse and the second pulses of the second multi-pulse to form the first state and the second state on the optical recording medium (see Figs. 1A or 1B, the power level P_w , P_e , P_1 or P_2 are the result of varying the current output to the laser device to generate first pluses and second pulses).

Referring to claim 4:

Dekker discloses the apparatus of claim 3, wherein the laser device has a voltage to generate the light, and the voltage varies according to the first pulses during forming the first state and in accordance with the second pulses during forming the second state (see Figs. 1A or 1B and Col. 5, lines 9-22, voltage would inherently include current).

Referring to claim 5:

Dekker discloses the apparatus of claim 3, wherein the voltage is not a DC voltage (see Figs. 1A or 1B, the voltage of first pulses and second pulses are not direct current voltage).

Referring to claim 7:

Dekker discloses the apparatus of claim 1, wherein the first state is a mark, and the second state is a space (see Col. 4, lines 16-29).

Referring to claim 8:

Dekker discloses the apparatus of claim 1, wherein the first multi-pulse is a recording pattern to form a mark, and the second multi-pulse is an erase pattern to form a space (see Figs. 1A or 1B, and Col. 4, lines 16-29).

Referring to claim 9:

Dekker discloses the apparatus of claim 1, wherein the recording waveform generating unit generates a cooling pulse extended from one of the first pulses of the first multi-pulse to one of second pulses of the second multi-pulse (see Figs. 1A or 1B for example, the off pulse between the first multi-pulse reference #13 and second multi-pulse reference #14 is a cooling pulse).

Referring to claim 10:

Dekker discloses the apparatus of claim 9, wherein the cooling pulse forms a portion of the first pulses and a portion of the second pulses (see Figs. 1A or 1B for example).

Referring to claim 11:

Dekker discloses the apparatus of claim 1, wherein the first pulses of the first multi-pulse (Figs. 1A, reference #13) have a first high level (level P_w) and a first low level (off pulse), and the second pulses of the second multi-pulse (Figs. 1A, reference #14) have a second high level (level P_e) and a second low level (level P_1).

Referring to claim 12:

Dekker discloses the apparatus of claim 11, wherein the second high level of the second pulses is smaller than the first high level of the first pulses (see Fig. 1A, P_e is smaller than P_w).

Referring to claim 14:

Dekker discloses the apparatus of claim 11, wherein the first pulses have a first duty cycle, and the second pulses a second duty cycle (see Fig. 1A, the first duty cycle is the ratio of a duration time of the high level (P_w) and another duration time of the low level (off pulse); and second duty cycle is the ratio of a duration time of the high level (P_e) and another duration time of the low level (P_1)).

Referring to claim 15:

Dekker discloses the apparatus of claim 14, wherein each second pulse comprises a high level and a low level, and the second duty cycle comprises:

a ratio of a duration time of the high level and another duration time of the low level in a range between $0.25T$ and $0.75T$, where T is a cycle of a reference clock (see Fig. 1A, each of the

second pulse (after the starting pulse), the duration time of the high level and duration time of the low level is .5T).

Referring to claim 16:

Dekker discloses the apparatus of claim 1, further comprising:

a servo unit rotating the optical recording medium according to one of the first multi-pulse and the second multi-pulse during forming the first state and the second state (see Fig. 3 and Col. 5, lines 3-22).

Referring to claim 18:

Dekker discloses the apparatus of claim 1, wherein the recording waveform generating unit generates information data representing a characteristic of the second multi-pulse (see Fig. 3 and Col. 5, lines 9-22, the information data is generated by the pattern generator 63, which includes the sequences or characteristic of second multi-pulses).

Referring to claim 20:

Dekker discloses the apparatus of claim 18, further comprising:

a laser device recording the information data on the optical recording medium (see Fig. 3, the information data is the sequences or characteristic of the write or erase pulses, and it is being recording onto the optical recording medium).

Referring to claim 21:

Dekker discloses the apparatus of claim 18, further comprising:

a laser device recording the information data on the optical recording medium (see Fig. 3, element 31; and Col. 4, lines 19-24 state the information data representative of marks and space are being recorded onto the optical disc).

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Referring to claim 25:

Dekker discloses an apparatus for forming a first state and a second state alternatively and sequentially on an information storage medium in response to input data having a first level and a second level, respectively (see Figs. 1A-1B and 3, the recording signal 10 shown in Figs. 1A or 1B has first state having first level indicated by reference #11, and second state having second level indicated by reference #12), in a recording apparatus, comprising:

a recording waveform generating unit generating a recording waveform which comprises a first multi-pulse having a plurality of first pulses corresponding to the first level of the input data, a second multi-pulse having a plurality of second pulses corresponding to the second level of input data (see Figs 1A-1B, the first multi-pulses corresponds to reference #13, and second multi-pulses corresponds to reference #14), and a cooling pulse concatenating the first and second multi-pulses (see Figs. 1A or 1B for example, the off pulse between the first multi-pulse reference #13 and second multi-pulse reference #14 is a cooling pulse, which is connecting the first and second multi-pulses).

7. Claims 1 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Ichihara.

Referring to claim 1:

Ichihara discloses an apparatus for forming a first state and a second state alternatively and sequentially on an optical recording medium in response to input data having a first level and a second level, respectively (see Fig. 1A-1B and Col. 2, lines 30-44), in an optical recording apparatus, comprising:

a recording waveform generating unit generating a recording waveform which includes a first multi-pulse having a plurality of first pulses corresponding to the first level of the input data

(see Figs. 1A-1B, and 1D, a mark is formed by plurality of pulses at first level) and a second multi-pulse having a plurality of second pulses corresponding to the second level of the input data (see Figs. 1A-1B, and 1D, a space is formed by plurality of pulses at second level, lower than the first level).

Referring to claim 6:

Ichihara discloses the apparatus of claim 1, wherein the input data comprises NRZI data having a high potential and a low potential each representing one of the first level and the second level (see Fig. 1A and Fig. 1B, and Col. 4, lines 45-62).

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dekker in view of Seo (US 2002/0101808).

Dekker discloses all the limitations that are in claims 1 and 11 for the reason set forth above in the 102 rejection.

Dekker does not show the first starting pulses varying in accordance with the second starting pulse and second ending pulse of the second pulses. However, Seo discloses an apparatus, wherein the first pulses comprising a first starting pulse and a first ending pulse, and the second pulses comprising a second starting pulses and the second ending pulses, the first starting pulse varying in accordance with the second starting pulse and the second ending pulse of the second pulses (see Seo, Fig. 6A for example; AP_type0=5 corresponds to first pulses and

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AP_type()=4 corresponds to second pulses; the starting pulse of the first pulses changes depending on the previous space, which comprised of second starting pulse and second ending pulse).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to varies the first starting pulse of the first pulses in accordance with the second starting and ending pulse of the second pulses in the apparatus disclosed by Dekker as suggested by Seo. One of ordinary skill in the art would have been motivated to do this, because precise controlling of the shape of the mark or space formed on the optical disc can be realized, hence, improving the recording quality (see Seo, paragraph [0009]).

10. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dekker in view of Ushiyama et al. (US Pub. No. 2002/0176338).

Dekker discloses all the limitations that are in claims 1 and 16 for the reason set forth above in the 102 rejection.

Dekker also discloses an apparatus, wherein the second multi-pulse comprises a starting pulse and an ending pulse (see Figs. 1A or 1B, reference #14). However, Dekker does not indicate the rotation speed is controlled in accordance with one of the starting pulse and the ending pulse of the second multi-pulse. On the other hand, Ushiyama et al. discloses an information recording apparatus, wherein the servo unit controls a rotation speed of the optical recording medium in accordance with one of the starting pulse and an ending pulse of a multi-pulse (see Ushiyama et al., paragraph [0021] and Fig. 11; different speed corresponds to different pulse width and power level of first pulse, multi-pulse, and last pulse).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to control the rotation speed of the optical recording medium in accordance with one of the starting pulse and an ending pulse of the second multi-pulse in the apparatus taught by Dekker as suggested by Ushiyama et al. One of ordinary skill in the art would have been motivated to do this, since it is possible to provide an optical disc apparatus which suppresses an edge shift caused by the shape change of the recording mark accompanied with the linear velocity change (see Ushiyama et al., paragraph [0026]).

11. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dekker in view of Ko et al. (US Pub. No. 2002/0067673).

Dekker discloses all the limitations that are in claims 1, 18, and 21 for the reason set forth above in the 102 rejection.

Dekker does not, but Ko et al. discloses an optical recording medium comprise a lead-in-area, and the information data is recorded in the lead-in-area of the optical recording medium (see Ko et al., Fig. 2, the lead-in-area contains a rewritable data zone for recording control information).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to record information data disclosed by Dekker, in the lead-in-area of the optical recording medium as suggested by Ko et al. One of ordinary skill in the art would have been motivated to do this, because control information (comprising of spaces and marks) can be recorded onto the lead-in-area. For example, write protection information is being recorded onto the lead-in-area to protect the disc from unwanted overwriting or erasing (see Ko et al., paragraph [0135]).

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12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

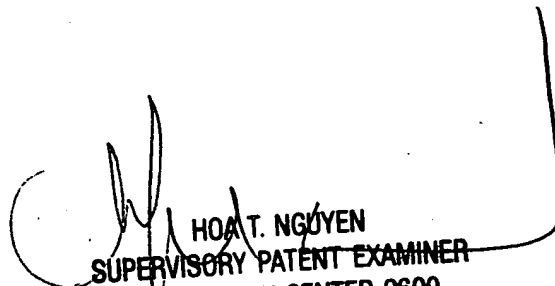
Ohno et al. is cited, because Ohno et al. teach a recording apparatus capable of generating erase pattern comprising of multi-pulse erase pulses.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lixi Chow whose telephone number is 571-272-7571. The examiner can normally be reached on Mon-Fri, 8:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on 571-272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LC 9/21/05


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